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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,155	03/13/2006	Kohei Miyazono	44342.018300	9047

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EXAMINER	
HENLEY III, RAYMOND J	
ART UNIT	PAPER NUMBER
1614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/559,155	MIYAZONO ET AL.	
	Examiner	Art Unit	
	Raymond J. Henley III	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4 is/are rejected.

7)☒ Claim(s) 1 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 13 March 2006 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 1/10/2006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

CLAIMS 1-4 ARE PRESENTED FOR EXAMINATION

Applicants' Information Disclosure Statement filed January 10, 2006 has been received and entered into the application. As reflected by the attached, completed copies of form PTO/SB/08a/b, (2 sheets), the cited references have been considered.

Claim Objection

Claim 1 is objected to because the underlying terminology for which "TGF-ß" and "BMP" are abbreviations has not been set forth. Lacking a recitation of such terminology, the full description of the claimed subject matter would, upon publication, not be completely disseminated.

In order to overcome this point of objection, the abbreviations or the complete terminology should be presented as parenthetical expressions accompanied by the corresponding term. Thus, for example, "TGF-ß" at line 2 would be presented either as ---TGF-ß, (transforming growth factor-ß)--- or as ---Transforming Growth Factor-ß, (TGF-ß).

Appropriate correction is required.

Claim Rejection - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In the present specification at pages 20-22, Test Examples 1-3, methods for determining osteogenesis and anti-TGF-ß activity are described where either compound A or an anti-TGF-ß neutralizing antibody are utilized. The disclosure, however, does not furnish guidance or direction in selecting a population of test compounds, beyond compounds which are already known to possess TGF-ß inhibitory activity, (e.g., page 6 of the present disclosure), to screen in order to determine whether osteogenesis acceleration activity is present. At best, the present disclosure simply indicates that one should run tests on an infinite number of candidate compounds in the hope that at least one or some of them will possess the desired activity. The disclosure should be a description of an invention and not an indication of a result that one *might* achieve if one were to make that invention. The present disclosure is not seen to do any more than outline the goals which the inventors hope to achieve and the problems that the invention will hopefully ameliorate. This, however, does not satisfy the disclosure requirement under 35 U.S.C. § 112, first paragraph and thus, the claims are deemed properly objected to. See *University of Rochester v. G.D. Searle & Co.*, 68 USPQ2d 1424 (DC WNY 2003). Thus, one skilled in the art would have to engage in undue experimentation in order to determine which compounds, from the vast number of compounds known, would be suitable for screening and even then would have no assurance that the claimed objectives could be practiced.

In support of the examiner's position that undue experimentation would be required to practice the invention in a manner commensurate in scope with the claims, please note Fecik et al., (cited by the examiner). Fecik et al. teach that combinatorial chemistry is considered to be a

method for the multiple and simultaneous or parallel synthesis of a significant number of compounds useful for meeting a perceived need (page 149, near the beginning of the paragraph under the heading "Introduction"). Such methods would be a means by which the skilled artisan could determine which compounds may be useful for the present methods by substituting the objective of Fecik et al., i.e., searching for orally active medications, for the objective of applicants, i.e., searching for osteogenesis accelerator compounds. The results of combinatorial chemistry, however, do not possess a degree of predictability such that the skilled artisan would be imbued with a reasonable expectation that a population of compounds possessing a particular function could, in fact, be identified. This appears to be the case because the equivocal nature of the authors statements. For example, they state "For medicinal purposes, when the objective is to find a 'hit' or 'lead' substance from screening assays where no prior structural clue exists, it is customary to synthesize large arrays of compounds in comparatively small quantity each and to assay them individually or in collections in the hope of finding a compound or compounds suitable for detailed further exploration in more demanding and revelatory biological assays." (page 149, middle of the paragraph under the heading "Introduction"). In the present case, the present claims are not limited to any particular population of starting compounds and thus would include those instances where "no prior structural clue exists" for the search of compounds which may act as osteogenesis accelerators. As indicated by the authors in such a case, there would only be "a hope" of finding a compound or compounds suitable "for further exploration", or for actually using the compounds for the intended purpose.

Summary

As the cited art and discussion above establish, practicing the claimed method in the manner disclosed by applicants would involve experimentation that is considered beyond routine. In order to actually practice the invention in a manner fully commensurate in scope with the claims, it is clear from the discussion above that the skilled artisan could not rely on applicants' disclosure as required by 35 U.S.C. § 112, first paragraph in order to determine that population of compounds which should be tested for osteogenesis accelerator activity.

Claim Rejection - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is directed to "An enhancer" which most closely corresponds to a composition of matter. The claim, however, contains the limitation "the enhancer being administered with..." which is consistent with a method-type claim. Thus, it is unclear as to whether applicants are intending to seek patent protection for a composition, which is static, or a method, which includes steps of manipulating static elements. For the purposes of examination, the claim will be interpreted as indicated by the first appearing claim element, which here is consistent with a composition of matter, i.e., "An enhancer".

Claims 3 and 4 are directed to a method of screening, but merely provides for the "use" of a "TGF-ß inhibition" or "a TGF-ß inhibition and a BMP inhibition" as measures for discovering an enhancer. Because the claims do not set forth any particular steps involved in the method, it is unclear what method/process applicants are intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims Free of Art

The invention of claims 1-2 is here determined to be a composition comprising a TGF-ß selective inhibitory compound and BMP. The closest art discovered by the examiner is Bentz et al., (U.S. Patent No. 5,393,739), who teach compositions useful for promoting osteogenesis which comprise TGF-ß and BMP. Insofar as the present claims require a compound that *inhibits* TGF-ß activity, while Bentz et al. teach TGF-ß, *per se*, it is clear that the patentees teach away from that which applicants are claiming as their invention.

None of the claims are currently in condition for allowance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond J. Henley III whose telephone number is 571-272-0575. The examiner can normally be reached on M-F, 8:30 am to 4:00 pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin H. Marschel can be reached on 571-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond J Henley III
Primary Examiner
Art Unit 1614

December 14, 2006